

**North Carolina State Government  
State Chief Information Officer**

# **Report on the Management Of Legacy Application Assets**



**Beverly Eaves Perdue  
Governor**

**George Bakolia  
Chief Information Officer**

**February 2009**

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**State of North Carolina  
Office of Information Technology Services**

**Beverly Eaves Perdue**  
Governor

**George Bakolia**  
State Chief Information Officer

February 5, 2009

The Honorable Marc Basnight  
President Pro Tempore  
North Carolina Senate  
Raleigh, NC

The Honorable Joe Hackney  
Speaker  
North Carolina House of Representatives  
Raleigh, NC

Dear Senator Basnight and Speaker Hackney

I am pleased to submit an updated report on the status of North Carolina's computer applications - the software programs that enable the state to perform business processes, complete governmental program operations, and deliver services to citizens.

This is the third biennial report and the second one developed from data contained in the state's applications portfolio management (APM) software tool. In addition to inventorying and keeping data on the 1,341 applications used in state government, the APM tool assists the agencies in managing these important and expensive assets to maximize value and minimize costs and risks over their useful lives.

This report, which is based on information supplied by the agencies, indicates the size of the state's applications portfolio has grown by 7 percent and the total statewide costs for maintaining and upgrading applications (now over \$266 million) has increased by 11 percent over the past two years. The average age of 9 years remains the same and is close to the industry average. Although some applications merit further review, overall, the portfolio continues to appear to be in relatively good condition.

Additional copies of the report are available at <http://www.scio.state.nc.us/>.

Better and more cost-effective management of the state's information technology resources is essential, especially in these times of severe financial challenges and economic uncertainties. I look forward to discussing this report with you and others.

Sincerely,

  
George Bakolia

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# Report on the Management Of Legacy Application Assets

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## Executive Summary

Information technology (IT) is essential to the efficient and effective operation of state government. It is imbedded in every business activity and fundamental to the successful performance of governmental programs. Information technology provides new, better, and more responsive services to citizens and builds the trust and confidence of the public through transparency and accountability.

Applications are a critical component of IT. They are the drive train that links the underlying technical infrastructure with the state's business and program staff and the public to provide convenient and quality services in a secure, reliable, and predictable manner.

Applications are often complex and represent a significant portion of the state's IT budget because they are expensive to develop and implement and costly to maintain, upgrade, and operate. Accordingly, they must be closely monitored and managed well to maximize value while minimizing costs and risks over their life spans.

In 2004, the State CIO purchased and implemented portfolio management software to assist agencies in the lifecycle management of their applications. The tool provides an inventory of applications and maintains more than 100 items of information on each. Armed with information in the tool, agencies can perform statistical analyses to help determine significant actions that must be taken, and the timing of those actions, to optimize benefits and manage risks over the applications' useful lives.

This is the third biennial report on the status of the state's applications portfolio, and the second prepared from the data supplied by the agencies in the application portfolio management tool. Since the methodology is the same as the last report, this report contains trend information for the first time.

### Highlights

The number of applications has grown by about 7 percent in the last two years, from 1,257 to 1,341.

Favorable trends:

- The average age remains at a little over 9 years – near the industry average.
- The number of low-value/high cost applications appears to be decreasing (9 in 2006 to 6 in 2008).
- The number and percentage of applications that agencies indicate will be modernized or replaced over the next three years is increasing (248 and 20% in 2006 to 332 and 25% in 2008).

Unfavorable trends:

- The number of applications potentially at risk is growing (196 in 2006 to 215 in 2008) – the percentage remains roughly the same at 16% for both periods.

- The number of mission critical applications potentially at risk is growing (85 in 2006 to 92 in 2008) – the percentage remains roughly the same at 7% for both periods.
- The number and percentage of mission critical applications potentially at risk with planned near-term remediation is decreasing (58 and 5% in 2006 to 50 and 4% in 2008).
- The number of applications over 20-years old is increasing (154 in 2006 to 172 in 2008), and the number of older applications with potential problems is increasing (43 in 2006 to 48 in 2008) – the percentages for both categories remain the same for both time periods.
- Fewer applications over 20 years old with potential problems have near-term plans for remediation or replacement (31 in 2006 to 17 in 2008).
- The number and percentage of applications with high costs is increasing (108 and 9% in 2006 to 130 and 10% in 2008).
- Total statewide operations and maintenance costs increased by 10 percent from \$239,718,037 (FY 2005-06) to \$266,206,115 (FY 2007-08).

These trends should be read with caution because the data is self-reported by agencies, the timeframe between measurements is short, and the changes are small. However, the negative trend lines can be expected to tilt downward as a result of the budget crisis.

There are two important points regarding this information:

- **Maintaining an inventory of applications, collecting and updating detailed data and analytical reporting are only the first steps in good application portfolio management.** These activities must be accompanied by further review, evaluation, research, and planning to successfully manage individual and related groups of applications over their useful lives. Major decisions are required, including what applications to remediate, modernize, or replace; when these actions should be performed; and how they will be accomplished, including the associated business strategies and best technical approaches for accomplishing the work.
- **Application portfolio management (APM) must be undertaken as part of a comprehensive business-IT management structure and governance process.** APM cannot be performed in a vacuum. Applications are part of a complex configuration of interdependent organizational layers from agency missions and strategies, business models and processes and enabling applications to supporting technical infrastructure. Improvements in or degradations of agency application portfolios can significantly impact the achievement of strategic goals and objectives, performance of governmental programs, and the efficiency and effectiveness of business processes and technical operations.

Appendix 1 on page 15 provides detailed statistical data by agency.

# Purpose and Background

## Purpose

The primary purpose of this report is to present a statistical compilation of the status of major applications in state government and the plans for managing them in the five-year future, as required by state statutes. A secondary intent is to offer a summarized view of the theories and best practices for the management of legacy applications, or those that are in place and operating.

The management of application assets is important because they:

- Are essential to the reliable, effective, efficient, and secure business operations of state government, the accomplishment of its primary governmental initiatives, and the success of its governmental programs.
- Represent significant capital investments and are expensive to operate, upgrade, enhance and maintain over their useful lives. Moreover, the mission critical ones incur extra planning efforts and associated expenses for data backup and system recoverability to support continuity of business in the event of a catastrophic failure.
- Present risks in the areas of security, confidentiality of records, privacy of individuals, and integrity of technical operations and business processes – resulting in possible unfavorable public repercussions and significant financial repercussions in the event of breach or failure.
- Provide opportunities for delivering innovative, responsive, and quality services to constituents; achieve efficiencies of operations and improve the productivity and effectiveness of employees, and enhance the outcomes and results of governmental programs. However, they must be implemented properly, operated proficiently, maintained effectively, and upgraded or enhanced periodically to provide maximum value.

The statistical information in this report was obtained from data provided by the agencies in the state's APM software and developed from subsequent analysis of that information by State CIO staff. Much of the information presented in this document is summary in nature. More detailed and specific data and analyses are available.

## Background

This is the third of biennial reports regarding the management of legacy application assets mandated by the General Assembly in a provision of G.S. 147-33.90 in 2003. The first two were issued in early 2005 and 2007, respectively. The underlying legislation aimed at the better planning, budgeting, and management of information technology in state government, and the adept and wise management of applications is an essential component of overall IT management and governance.



The initial report resulted from a comprehensive study performed with the assistance of an outside firm. The primary purposes of that study were to identify applications that presented risks needing immediate attention and to further categorize applications by timeframes for remediation or replacement. The report indicated that while there were some applications that merited close attention, in general, the state's application inventory was acceptable. Although informative and well-performed, the study was limited in that it did not include the costs to operate and maintain applications, focused on fact-finding (where we stand and what may be required), and was a snapshot at a point in time.

Recognizing that the evaluation and life cycle planning of applications is not a one-time, sporadic event, but a sustained, and structured effort, the State CIO implemented in 2005 and early 2006 a comprehensive portfolio management software tool, with a fully-featured APM component. The intent was to:

- Assist the State CIO in performing oversight duties and responsibilities.
- Provide inventory, analysis, and life cycle decision-making support to agencies in performing their responsibilities and accountability for the management of application assets.
- Recognize serious potential problems and high-risk/high-impact situations in a timely manner in order to take prompt and appropriate actions for mitigation.

Aware that the APM software tool alone would not be sufficient for agency executive, business, and technical staff to perform their duties and responsibilities for managing applications, the State CIO sponsored a comprehensive education program focusing on the theories and best practices for APM. Processing templates, logic models, and detailed instructions were developed to assist agencies in applying key APM concepts, and training was given for performing relevant analyses, asking pertinent questions, and developing appropriate management plans.

The second report indicated that the agencies had progressed in their capabilities for managing their applications. They had used the software tool to assist in creating a detailed inventory of these assets; performing assessments of their status from business, financial, and technical perspectives; and developing individual five-year management plans. The statistical analyses performed by the State CIO's staff showed that the state's applications were in relatively good shape, with an average age of 9 years, close to the industry average. However 85 of the 1,257 applications indicated the need for close attention due to potential problems and the fact that they were critical for operations.

This document follows much of the focus, scope, and intent of the previous reports in that it is concerned with the status of the state's portfolio of applications and the intentions of agencies for their remediation, elimination or replacement. This thrust follows the primary activities involved in APM and supported by the software tool:

- Inventory them (or update repository data).
- Evaluate their present status:

- Costs to operate and maintain.
  - Ability to support current and future agency business processes and the operations of governmental programs.
  - Fit with the state's technical architecture and each agency's business and applications architectures.
  - Risk of technical and/or business failure due to lack of staff or vendor support, technical obsolescence, defunct technical component, security vulnerabilities, outdated design, dependencies on other applications with problems, use of outmoded or non-supported technical infrastructure, etc.
- Determine the priority and urgency for action:
    - Importance to the business processes of the agency or the results of program operations (mission critical or less essential to the achievement of agency goals and mandates or success of key business strategies and initiatives).
    - Severity of business issues or technical problems – risks and severity of any adverse impacts.
  - Decide the best approaches and timeframes for managing them for at least the five-year near-term, including continue to maintain, enhance or modernize, consolidate or eliminate, or retire/replace. Longer term plans also may be created based on the positions of applications in their life cycles.
  - Develop a comprehensive modernization plan/roadmap and a technical applications strategy for the agency's applications portfolio and prepare associated funding requests.

## **Summary Description of Application Portfolio Management (APM)**

Application assets are managed through the discipline of application portfolio management (APM). In summary, APM is about how agencies measure and respond to the business value, cost, operational and technical performance, and risk of their application portfolios. APM employs a combination of business/IT governance processes, portfolio management concepts, and best practices and techniques for asset life cycle management. The goals are to obtain optimal performance and value from applications over their life spans while minimizing costs and risks and to consolidate, eliminate, or retire them when they are no longer business-acceptable, cost-justified, or risk-tolerable.

APM employs tools and methodologies for a) maintaining the portfolio of in-production applications; b) performing analyses for judging it for value, cost, and risk; c) providing management information for determining useful lives and examining trade-offs related to retirement/replacement versus making further expenditures to improve business functionally or technical cost-effectiveness and d) creating a management plan (road map) for transitioning each application and the portfolio as a whole to the target business status and technical architecture.

In practice, many business shortcomings, technical problems, and operational risks associated with aging applications can be attributed to outdated technologies; therefore, agency business, application, and infrastructure architectures are key considerations for

the management of applications. Accordingly, the road map for individual or groups of related applications is often called the applications modernization plan because it shows the paths and timeframes (what to do and when to do it) for removing technically obsolete applications from the portfolio or renovating them to employ more modern designs and newer technologies and run on more cost-effective and better-performing platforms.

Ideally, agencies should develop an applications strategy that guides the decisions for developing the modernization plan. The strategy gives a summary-level view of how the applications portfolio will be transitioned (from a technology perspective) over time to better support business strategies, models, and processes. It is the approach for linking business related and technically-focused architectures and using technology to achieve business goals and governmental program objectives and outcomes. The applications modernization plan and applications strategy documents should be developed and followed from a business-oriented perspective using a holistic approach, versus a technology-centered view using a piecemeal approach, to achieve the greatest impact on agency business performance and mission accomplishment.

## Benefits of APM

The benefits of APM can be summarized in four areas highlighted below:

- **Reduce costs** – The identification of overlapping capabilities and unused functions of applications to offer opportunities for retirements without replacement, consolidation of like applications, or multiple retirements from a common initiative (such as ERP replacing several legacy applications). The removal of redundant, elimination of low-value/high-cost, and technical renovation of high-maintenance applications free up funds for possible use on new investments and innovative projects offering greater benefits.
- **Identify and reduce risks** – A list of areas creating potentially unacceptable risks includes regulatory compliance (unable to meet), disaster recovery/business continuity (unable to perform), security vulnerabilities, vendor viability for support or warranty coverage, product viability for technical components, loss of staff with technical or business knowledge, privacy (compromise of sensitive citizen data), information (unable to follow data retention/deletion policies), and business failure (unable to support changing business requirements).
- **Prioritize capital investments** – An understanding of the state of the application portfolio from value, cost, and risk perspectives and its supporting IT infrastructure provides important information for the IT investment review, selection, and funding process.
- **Provide business value** – The development of application modernization plans assists in the alignment of IT initiatives with business strategies and enables the reengineering of business processes that improve efficiencies and effectiveness of governmental services and programs. The objective is to transform the applications portfolio to a position that is more business-responsive, cost-optimized, financially-affordable, technically-suitable, and risk-acceptable.

## Statistical Summary

The table below offers some key statewide statistics for this and the 2007 report from the applications portfolio management software. For this report, more detailed information by agency and statewide totals are presented in Appendix 1. The 2007 report presents data as of fall 2006, and this report presents data as of fall 2008.

Description	2009 Report	2007 Report	Trend Observations	Significance Comments
<b>General Information</b>				
Total number of active applications	1,341	1,257	<b>Number Increasing</b>	Indicates large size of portfolio and continued growth (7% from 2006 to 2008)
Applications that agencies indicate will be modernized or replaced over the next three years	332	248	<b>Number and Percent Increasing</b>	Planned significant makeover increased from 20% in 2006 to 25% in 2008
<b>Potential Problem Applications</b>				<b>See Notes 1 and 2</b>
Total applications with potential problems	215	196	<b>Number Increasing</b>	Number that is potentially at risk is growing, while percent is the same (16%) – potential area for review
Potential problem applications that are classified as critical to statewide or department operations	92	85	<b>Percent Unchanged</b>	For both reports, 7% of portfolio requires close attention, as these are both critical and potentially at risk
Potential problem applications that are classified as critical and have plans to remediate or replace within the next three years	50	58	<b>Number and Percent Decreasing</b>	Percentage of close attention applications with planned near-term action is decreasing (5% in 2006 to 4% in 2008) – potential area for review
<b>Age Exception Applications</b>				<b>See Note 1</b>
Average age of statewide portfolio	9 years	9 years	<b>Unchanged</b>	Average age is the same for both reports and near industry average
Applications over 20 years old	172	154	<b>Percent Unchanged</b>	For both reports, 13% of portfolio is subject to potential problems due to age
Applications over 20 years old and with potential problems	48	43	<b>Percent Unchanged</b>	For both reports, 28% of older applications have potential problems
Applications over 20 years old with potential problems and have plans to remediate or replace within the next three years	17	31	<b>Number Decreasing</b>	For older applications with potential problems, fewer this report have near-term action plans – potential area for review
<b>Cost Exception Applications</b>				<b>See Note 3</b>
Applications with high costs	130	108	<b>Number and Percent Increasing</b>	Percentage of applications with high costs is increasing (9% in 2006 to 10% in 2008) – potential area for review
Applications with high costs that are classified as non-critical	6	9	<b>Number Decreasing</b>	Fewer non-critical applications have high costs indicating possible progress in eliminating low-value/high-cost applications
<b>Total Statewide Costs</b>				<b>See Note 4</b>
Total annual operations and maintenance costs for all applications	\$266.2	\$239.7	<b>Number Increasing</b>	Total cost increase of 11% from FY 2005-06 to FY 2007-08, and cost/application increase by 5% - potential area for review

**Note 1:** Potential problem applications are those that have low architectural fit scores, low operational performance scores, and/or high risk scores.

**Note 2:** Critical applications are those that are considered important to statewide or departmental operations.

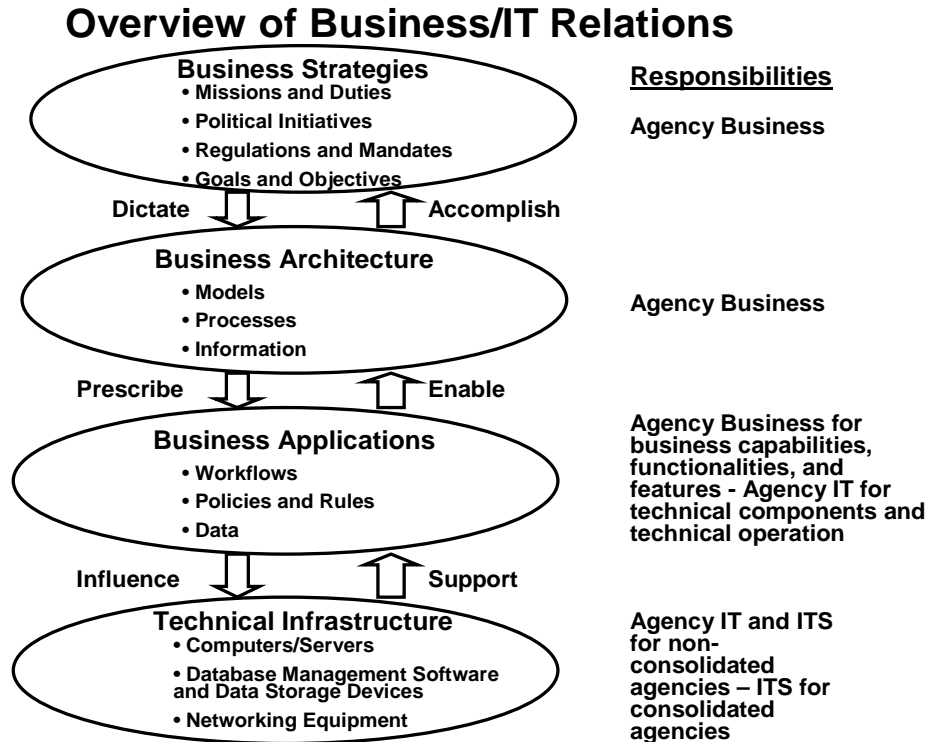
**Note 3:** High costs for analysis purposes are annual operating and maintenance costs over \$250,000.

**Note 4:** Costs are in millions and the two fiscal years correspond to the 2007 and 2009 reports.

## Context

### Overview of Business/IT Relations

The purpose of information technology (IT) is not to deliver technology or technical systems, but to increase efficiency, improve productivity and enhance results and outcomes of business programs. IT does this through the development and technical operation of applications and the implementation and management of technical infrastructure. The business/IT relations “stack” is illustrated below.



The following points are worth noting in any discussion of applications.

**Applications are essential to agency missions and goals, program objectives and outcomes, and successful business transactions with citizens** – They apply the power and capabilities of information technology to address the well-being and prosperity of the state’s citizens in the areas of health and welfare, education, safety and security, education, environmental protection and sustainability, and economic development and constituent prosperity.

**Applications are the direct connection and linkage between technology and the business** - They make use of the computing, storage, and networking assets of the technical infrastructure to support business processes, provide the information for making business decisions and formulating governmental policies. They also perform tasks necessary for accomplishing business functions and carrying out governmental programs.

**The major components of business/IT relations are inextricably interdependent –**  
A change in one has a cascading effect (up and down) on the others, so that strategies, plans and actions must consider the effects and impacts on the others. All must be coordinated for the successful performance of the whole.

**Agency business executives are responsible for the management of applications**  
– Decisions regarding the life cycle management of applications from purchase to retirement (with or without replacement) are primarily business, with technical input and advice. The sole functions of applications are to enable business models and processes and support business operations. Moreover, decisions regarding management over their life spans have significant budgetary impacts. Therefore, business should periodically assess the status of applications and develop and carry out life cycle management plans, including their maintenance, upkeep, enhancement, retirement and other actions.

For some agencies, ITS is responsible for providing technical infrastructure services (computing, storage, and networking) for supporting applications. For others, these technical infrastructure services are provided by both agency IT organizations and ITS. The IT staffs of agencies are responsible for the technical performance and operations of applications.

Appendix 2 offers a summary of a 2008 study by the National Association of State Chief Information Officers (NASCIO) regarding the challenges of legacy applications to the operations of state government and approaches by states to manage them. While the statistics of the study are not precisely comparable to those in this report, the focus and overall findings of NASCIO report correspond to and agree with the major themes of this document.

## Appendix 1 – Key Application Statistics

The following seven tables provide statistical information from the APM software by agency and statewide totals. Descriptions and definitions are given below.

- **Table 1 - General Statistical Information** contains overview information of interest in determining the priority and urgency for further review and evaluation of individual applications. **Problem applications** are those that have low architectural fit scores, low operational performance scores, and/or high risk scores. **Critical applications** are those classified as critical to statewide or departmental operations.
- **Table 2 - Age Statistical Information** provides average age and number of applications in various age categories. Age, by itself, is not an indicator of problems, risk, or priority; however, older applications are more subject to problem and risk factors, such as technical obsolescence, lack of vendor support, inability to meet changing business requirements, etc.
- **Table 3 - Cost Statistical Information** gives order of magnitude cost information for operating and maintaining applications. These costs may be useful in justifying remediation or replacement decisions that offer lower annual operating expenses and recognizing opportunities for retiring high-cost/non-critical applications to redirect funds for optimizing IT expenses.
- **Table 4 - Disaster Recovery Statistical Information** offers return-to-service time requirements for applications, and it gives the location for backup facilities (ITS or other). Other could be at the department, outsourcer, or no backup capabilities.
- **Table 5 - Potential Problems Statistical Information** identifies total applications with potential problems and those by problem type.
- **Table 6 - Critical and Non-Critical Statistical Information** gives the number of applications by type of criticality. The column labeled **Critical Applications** is the sum of the columns labeled **Statewide Critical** and **Department Critical** (the two highest levels of criticality). This is the same number as that in the column labeled **Critical Applications** in the **General Statistical Information** (first table above).
- **Table 7 – Plans Statistical Information** gives the number of applications with intentions for modernization or replacement within the next three years.
- **Table 8 – Priority Classification Statistical Information** segregates applications by relative importance to the agency (high or low critically) and severity of deficiencies/risks (large or small problems). Greater attention for action should be given to important (mission critical) applications with more severe technical or business problems (high risks and severe adverse impact if risk materializes).

**Table 1 – General Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Applications with Plans in Roadmap for FY 2009-2013</b>	<b>Total "Problem" Applications</b>	<b>Critical Applications</b>	<b>Average Age of Applications</b>	<b>Total FY 2008 Operations and Maintenance Application Costs</b>
Administration, Department of	54	0	19	32	6.96	\$21,117,494
Administrative Hearings, Office of	3	3	1	2	5.67	\$14,900
Agriculture and Consumer Services, Department of	79	11	7	6	11.38	\$1,018,337
Alcoholic Beverage Control Commission	5	0	0	3	7.20	\$19,158
Auditor, Office of the State	8	4	1	7	2.75	\$85,180
Budget and Management, Office of State	8	1	1	1	13.50	\$732,703
Commerce, Department of	25	12	4	15	5.32	\$58,482
Controller, Office of the State	12	1	3	10	12.42	\$9,529,600
Correction, Department of	28	1	0	8	4.93	\$12,009,581
Crime Control and Public Safety, Department of	81	1	10	47	14.30	\$3,267,340
Cultural Resources, Department of	36	0	12	10	12.81	\$166,818
Employment Security Commission	19	0	0	16	13.53	\$4,890,827
Environment and Natural Resources, Department of	209	83	48	53	7.35	\$8,626,680
Health and Human Services, Department of	247	32	29	101	11.08	\$87,188,047
Industrial Commission - Workers' Compensation	10	2	0	4	8.50	\$1,366,551
Information Technology Services, Office of	30	10	6	18	5.23	\$11,686,225
Insurance, Department of	16	4	7	11	6.50	\$402,126
Justice, Department of	98	55	21	64	9.29	\$2,857,090
Juvenile Justice and Delinquency Prevention, Department of	12	6	5	3	3.67	\$635,681
Labor, Department of	7	7	0	7	5.43	\$9,360
North Carolina Community Colleges	6	2	5	6	11.50	\$746,819
Public Instruction, Department of	117	19	15	78	8.83	\$24,675,592
Revenue, Department of	15	4	2	8	7.33	\$14,349,268
Secretary of State, Department of the	3	0	2	3	12.00	\$805,464
State Board of Elections	5	1	1	5	3.80	\$3,447,500
Transportation, Department of	187	66	12	95	8.94	\$51,335,480
Treasurer, Department of the State	17	7	4	6	7.71	\$3,403,812
Wildlife Resources Commission	4	0	0	4	2.25	\$1,760,000
<b>State Totals:</b>	<b>1,341</b>	<b>332</b>	<b>215</b>	<b>623</b>	<b>9.28</b>	<b>\$266,206,115</b>



**Table 2 – Age Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Average Age of Applications</b>	<b>Over 5 Years Old</b>	<b>Over 10 Years Old</b>	<b>Over 15 Years Old</b>	<b>Over 20 Years Old</b>
Administration, Department of	54	6.96	33	13	5	0
Administrative Hearings, Office of	3	5.67	1	1	0	0
Agriculture and Consumer Services, Department of	79	11.38	52	34	19	18
Alcoholic Beverage Control Commission	5	7.20	5	1	0	0
Auditor, Office of the State	8	2.75	3	0	0	0
Budget and Management, Office of State	8	13.50	6	4	4	3
Commerce, Department of	25	5.32	9	4	3	2
Controller, Office of the State	12	12.42	8	6	4	3
Correction, Department of	28	4.93	14	3	0	0
Crime Control and Public Safety, Department of	81	14.30	61	45	38	37
Cultural Resources, Department of	36	12.81	30	18	13	9
Employment Security Commission	19	13.53	18	14	8	3
Environment and Natural Resources, Department of	209	7.35	135	56	16	9
Health and Human Services, Department of	247	11.08	218	105	63	45
Industrial Commission - Workers' Compensation	10	8.50	8	1	1	1
Information Technology Services, Office of	30	5.23	15	7	1	0
Insurance, Department of	16	6.50	13	2	0	0
Justice, Department of	98	9.29	71	33	15	12
Juvenile Justice and Delinquency Prevention, Department of	12	3.67	5	0	0	0
Labor, Department of	7	5.43	5	0	0	0
North Carolina Community Colleges	6	11.50	6	3	2	1
Public Instruction, Department of	117	8.83	79	44	27	15
Revenue, Department of	15	7.33	10	4	1	0
Secretary of State, Department of the	3	12.00	3	1	1	1
State Board of Elections	5	3.80	2	0	0	0
Transportation, Department of	187	8.94	149	50	15	13
Treasurer, Department of the State	17	7.71	13	6	2	0
Wildlife Resources Commission	4	2.25	0	0	0	0
<b>State Totals:</b>	<b>1,341</b>	<b>9.28</b>	<b>972</b>	<b>455</b>	<b>238</b>	<b>172</b>

**Table 3 – Cost Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Total FY 2008 Operations and Maintenance Application Costs</b>	<b>Applications with O&amp;M costs over \$100,000/Year</b>	<b>Applications with O&amp;M costs over \$250,000/Year</b>	<b>Applications with O&amp;M costs over \$500,000/Year</b>	<b>Applications with O&amp;M costs over \$1,000,000/Year</b>
Administration, Department of	54	\$21,117,494	3	2	1	1
Administrative Hearings, Office of	3	\$14,900	0	0	0	0
Agriculture and Consumer Services, Department of	79	\$1,018,337	2	1	0	0
Alcoholic Beverage Control Commission	5	\$19,158	0	0	0	0
Auditor, Office of the State	8	\$85,180	0	0	0	0
Budget and Management, Office of State	8	\$732,703	2	0	0	0
Commerce, Department of	25	\$58,482	0	0	0	0
Controller, Office of the State	12	\$9,529,600	9	8	7	2
Correction, Department of	28	\$12,009,581	12	7	3	1
Crime Control and Public Safety, Department of	81	\$3,267,340	4	1	1	1
Cultural Resources, Department of	36	\$166,818	0	0	0	0
Employment Security Commission	19	\$4,890,827	8	4	4	2
Environment and Natural Resources, Department of	209	\$8,626,680	20	5	3	1
Health and Human Services, Department of	247	\$87,188,047	36	23	17	11
Industrial Commission - Workers' Compensation	10	\$1,366,551	3	2	1	0
Information Technology Services, Office of	30	\$11,686,225	14	11	8	4
Insurance, Department of	16	\$402,126	1	0	0	0
Justice, Department of	98	\$2,857,090	5	2	0	0
Juvenile Justice and Delinquency Prevention, Department of	12	\$635,681	1	1	0	0
Labor, Department of	7	\$9,360	0	0	0	0
North Carolina Community Colleges	6	\$746,819	2	1	0	0
Public Instruction, Department of	117	\$24,675,592	15	7	5	3
Revenue, Department of	15	\$14,349,268	9	5	4	2
Secretary of State, Department of the	3	\$805,464	3	1	0	0
State Board of Elections	5	\$3,447,500	3	3	2	1
Transportation, Department of	187	\$51,335,480	75	43	29	15
Treasurer, Department of the State	17	\$3,403,812	3	2	1	1
Wildlife Resources Commission	4	\$1,760,000	2	1	1	1
<b>State Totals:</b>	<b>1,341</b>	<b>\$266,206,115</b>	<b>232</b>	<b>130</b>	<b>87</b>	<b>46</b>

**Table 4 – Disaster Recovery Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Return to Service Requirement under 8 Hours</b>	<b>Return to Service Requirement Between 8 and 24 Hours</b>	<b>Return to Service Requirement Over 24 Hours</b>	<b>Backup and Restore at ITS</b>	<b>Backup and Restore Other</b>	<b>Adequate Offsite Backup and Restore Capability</b>
Administration, Department of	54	14	36	1	27	27	13
Administrative Hearings, Office of	3	0	0	3	3	0	3
Agriculture and Consumer Services, Department of	79	14	11	26	13	66	79
Alcoholic Beverage Control Commission	5	1	2	2	5	0	5
Auditor, Office of the State	8	3	2	3	1	7	2
Budget and Management, Office of State	8	6	1	1	8	0	8
Commerce, Department of	25	11	4	10	2	23	18
Controller, Office of the State	12	0	1	11	8	4	11
Correction, Department of	28	20	4	4	20	8	24
Crime Control and Public Safety, Department of	81	2	39	36	2	79	42
Cultural Resources, Department of	36	4	1	29	2	34	3
Employment Security Commission	19	9	7	3	10	9	19
Environment and Natural Resources, Department of	209	11	59	127	11	198	99
Health and Human Services, Department of	247	29	24	193	73	174	223
Industrial Commission - Workers' Compensation	10	3	0	0	8	2	8
Information Technology Services, Office of	30	15	1	12	23	7	22
Insurance, Department of	16	1	5	10	1	15	16
Justice, Department of	98	10	68	20	0	98	98
Juvenile Justice and Delinquency Prevention, Department of	12	1	1	10	2	10	12
Labor, Department of	7	0	5	2	0	7	1
North Carolina Community Colleges	6	0	0	0	0	6	5
Public Instruction, Department of	117	9	30	68	29	88	70
Revenue, Department of	15	2	3	10	3	12	3
Secretary of State, Department of the	3	0	2	1	2	1	3
State Board of Elections	5	1	2	2	0	5	5
Transportation, Department of	187	5	74	107	85	102	124
Treasurer, Department of the State	17	0	4	13	0	17	14
Wildlife Resources Commission	4	4	0	0	0	4	4
<b>State Totals:</b>	<b>1,341</b>	<b>175</b>	<b>386</b>	<b>704</b>	<b>338</b>	<b>1003</b>	<b>934</b>

**Table 5 – Potential Problems Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Total "Problem" Applications *</b>	<b>Applications with Technical Issues</b>	<b>Applications with Risk Issues</b>	<b>Applications with Operational Performance Issues</b>
Administration, Department of	54	19	19	2	0
Administrative Hearings, Office of	3	1	1	1	0
Agriculture and Consumer Services, Department of	79	7	7	1	0
Alcoholic Beverage Control Commission	5	0	0	0	0
Auditor, Office of the State	8	1	1	0	0
Budget and Management, Office of State	8	1	1	0	0
Commerce, Department of	25	4	4	1	0
Controller, Office of the State	12	3	2	1	1
Correction, Department of	28	0	0	0	0
Crime Control and Public Safety, Department of	81	10	10	0	0
Cultural Resources, Department of	36	12	12	0	0
Employment Security Commission	19	0	0	0	0
Environment and Natural Resources, Department of	209	48	47	2	1
Health and Human Services, Department of	247	29	29	0	2
Industrial Commission - Workers' Compensation	10	0	0	0	0
Information Technology Services, Office of	30	6	5	0	1
Insurance, Department of	16	7	7	0	0
Justice, Department of	98	21	21	1	0
Juvenile Justice and Delinquency Prevention, Department of	12	5	5	0	0
Labor, Department of	7	0	0	0	0
North Carolina Community Colleges	6	5	5	0	0
Public Instruction, Department of	117	15	12	4	1
Revenue, Department of	15	2	2	0	0
Secretary of State, Department of the	3	2	2	0	0
State Board of Elections	5	1	1	0	0
Transportation, Department of	187	12	12	0	0
Treasurer, Department of the State	17	4	4	0	0
Wildlife Resources Commission	4	0	0	0	0
<b>State Totals:</b>	<b>1,341</b>	<b>215</b>	<b>209</b>	<b>13</b>	<b>6</b>

**Table 6 – Critical and Non-Critical Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Critical Applications *</b>	<b>Statewide Critical Applications</b>	<b>Department Critical Applications</b>	<b>Program Critical Applications</b>	<b>Non-Critical Applications</b>
Administration, Department of	54	32	21	11	20	2
Administrative Hearings, Office of	3	2	2	0	1	0
Agriculture and Consumer Services, Department of	79	6	3	3	58	12
Alcoholic Beverage Control Commission	5	3	0	3	2	0
Auditor, Office of the State	8	7	1	6	0	1
Budget and Management, Office of State	8	1	0	1	7	0
Commerce, Department of	25	15	0	15	7	3
Controller, Office of the State	12	10	9	1	2	0
Correction, Department of	28	8	0	8	16	4
Crime Control and Public Safety, Department of	81	47	14	33	23	10
Cultural Resources, Department of	36	10	5	5	14	12
Employment Security Commission	19	16	7	9	0	3
Environment and Natural Resources, Department of	209	53	32	21	92	53
Health and Human Services, Department of	247	101	40	61	134	12
Industrial Commission - Workers' Compensation	10	4	3	1	2	0
Information Technology Services, Office of	30	18	9	9	3	6
Insurance, Department of	16	11	3	8	1	4
Justice, Department of	98	64	14	50	15	19
Juvenile Justice and Delinquency Prevention, Department of	12	3	0	3	5	4
Labor, Department of	7	7	0	7	0	0
North Carolina Community Colleges	6	6	1	5	0	0
Public Instruction, Department of	117	78	36	42	16	19
Revenue, Department of	15	8	0	8	5	2
Secretary of State, Department of the	3	3	0	3	0	0
State Board of Elections	5	5	5	0	0	0
Transportation, Department of	187	95	55	40	56	35
Treasurer, Department of the State	17	6	3	3	6	5
Wildlife Resources Commission	4	4	0	4	0	0
<b>State Totals:</b>	<b>1,341</b>	<b>623</b>	<b>263</b>	<b>360</b>	<b>485</b>	<b>206</b>

**Table 7 – Remediation Plans Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Applications with Plans in Roadmap for FY 2009-2013</b>	<b>Applications with Remediation Plans in 2009</b>	<b>Applications with Remediation Plans in 2010</b>
Administration, Department of	54	0	0	0
Administrative Hearings, Office of	3	3	3	0
Agriculture and Consumer Services, Department of	79	11	10	4
Alcoholic Beverage Control Commission	5	0	0	0
Auditor, Office of the State	8	4	4	3
Budget and Management, Office of State	8	1	0	1
Commerce, Department of	25	12	9	5
Controller, Office of the State	12	1	0	1
Correction, Department of	28	1	1	1
Crime Control and Public Safety, Department of	81	1	1	1
Cultural Resources, Department of	36	0	0	0
Employment Security Commission	19	0	0	0
Environment and Natural Resources, Department of	209	83	41	74
Health and Human Services, Department of	247	32	24	17
Industrial Commission - Workers' Compensation	10	2	2	2
Information Technology Services, Office of	30	10	10	2
Insurance, Department of	16	4	1	3
Justice, Department of	98	55	30	17
Juvenile Justice and Delinquency Prevention, Department of	12	6	5	2
Labor, Department of	7	7	2	7
North Carolina Community Colleges	6	2	2	1
Public Instruction, Department of	117	19	13	8
Revenue, Department of	15	4	1	0
Secretary of State, Department of the	3	0	0	0
State Board of Elections	5	1	1	0
Transportation, Department of	187	66	38	32
Treasurer, Department of the State	17	7	3	2
Wildlife Resources Commission	4	0	0	0
<b>State Totals:</b>	<b>1,341</b>	<b>332</b>	<b>201</b>	<b>183</b>

**Table 8 – Priority Classification Statistical Information**

<b>Agency</b>	<b>Number of Active Applications</b>	<b>Low Criticality Application with Low Problems</b>	<b>Low Criticality Application with High Problems</b>	<b>High Criticality Application with Low Problems</b>	<b>High Criticality Application with High Problems (Action Quadrant)</b>	<b>High Criticality/High Problem Plan in Place</b>	<b>High Criticality/High Problem No Plan in Place</b>
Administration, Department of	54	13	9	22	10	0	10
Administrative Hearings, Office of	3	1	0	1	1	1	0
Agriculture and Consumer Services, Department of	79	66	7	6	0	0	0
Alcoholic Beverage Control Commission	5	2	0	3	0	0	0
Auditor, Office of the State	8	1	0	6	1	0	1
Budget and Management, Office of State	8	6	1	1	0	0	0
Commerce, Department of	25	8	2	13	2	1	1
Controller, Office of the State	12	2	0	7	3	1	2
Correction, Department of	28	20	0	8	0	0	0
Crime Control and Public Safety, Department of	81	32	2	39	8	1	7
Cultural Resources, Department of	36	15	11	9	1	1	0
Employment Security Commission	19	3	0	16	0	0	0
Environment and Natural Resources, Department of	209	120	36	41	12	7	5
Health and Human Services, Department of	247	124	22	94	7	4	3
Industrial Commission - Workers' Compensation	10	6	0	4	0	0	0
Information Technology Services, Office of	30	9	3	15	3	3	0
Insurance, Department of	16	3	2	6	5	1	4
Justice, Department of	98	27	7	50	14	12	2
Juvenile Justice and Delinquency Prevention, Department of	12	4	5	3	0	0	0
Labor, Department of	7	0	0	7	0	0	0
North Carolina Community Colleges	6	0	0	1	5	4	1
Public Instruction, Department of	117	31	8	71	7	5	2
Revenue, Department of	15	6	1	7	1	0	1
Secretary of State, Department of the	3	0	0	1	2	0	2
State Board of Elections	5	0	0	4	1	0	1
Transportation, Department of	187	89	3	86	9	9	0
Treasurer, Department of the State	17	7	4	6	0	0	0
Wildlife Resources Commission	4	0	0	4	0	0	0
<b>State Totals:</b>	<b>1,341</b>	<b>595</b>	<b>123</b>	<b>531</b>	<b>92</b>	<b>50</b>	<b>42</b>

## Appendix 2– NASCIO’s Legacy Applications Modernization Report

In the summer and fall of 2008, the National Association of State Chief Information Officers (NASCIO) conducted a study of legacy systems and their modernization. The report, released December 2008 and titled [\*Digital States at Risk: Modernizing Legacy Systems\*](#), involved the participation of 29 states, including North Carolina. The intent was to establish a baseline of what states consider to be legacy systems in their IT operations, assess the impact of these applications on critical operations, and identify strategies states are using to modernize these without interruption to service delivery.

Because of definitional differences and other non-commonalities, the detailed statistics from the NASCIO report and this document are not readily comparable. However, the thrust and effort of the report and the significant attention to the management of applications exhibited by it are reliable indicators of the importance of this topic to the management of IT in state government. The overall findings are in line with the situations, challenges, and experiences of our state. This is expected, as North Carolina is referenced throughout the report and is considered a leader among the states in the discipline of APM.

In summary, the NASCIO report states that the modernization of state legacy systems is emerging as a significant financial, technical and programmatic challenge to states’ abilities to deliver services to citizens, and conduct day-to-day operations. It also says that without investments in legacy system renovation, modernization or replacement, the ability of a state to operate as a modern organization and serve its citizens is at risk. It indicates that the key drivers moving states to the modernization of applications are change or reengineering of business processes, inability to adequately support “line of business” requirements, application design limitations, “graying” of IT staff, and support costs beyond acceptable range. “Life cycle approaches” are used by many states to manage the aging and replacement of systems. Common challenges include cost/resource availability, culture/user resistance to change, inability to support common technical approaches or shared services, lack of executive management interest, lack of project/program management or governance, and risk of migration.